AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1.-16. Canceled.

17. (New) A method of monitoring the temperature of a biochemical reaction in a reaction mixture, said method comprising:

(i) designing a fluorescently labelled temperature probe DNA sequence so that it comprises a double stranded region which denatures at any desired predetermined temperature wherein the fluorescent label of said temperature probe sequence is arranged so that a detectable signal occurs at the point at which denaturation of the said region takes place;

(ii) effecting said reaction in the presence of said probe; and

(iii) monitoring fluorescence from said reaction mixture so as to determine when said predetermined temperature has been reached.

18. (New) A method according to claim 17 wherein the temperature probe DNA sequence comprises a labelled double stranded DNA sequence.

19. (New) A method according to Claim 17 wherein the temperature probe DNA sequence comprises a single nucleic acid strand, end regions of which hybridize together so as to form a loop or "hairpin" structure.

20. (New) A method according to Claim 17 wherein the fluorescent label comprises an intercalating dye.

21. (New) A method according to Claim 17 wherein the fluorescent label used in the method employs fluorescence transfer (FRET) as the basis of the signal.

22. (New) A method according to Claim 21 wherein the temperature probe DNA sequence is provided with a reporter and a quencher molecule, arranged so that the hybridization of the strands alters the spatial relationship between the quencher and reporter molecules.

23. (New) A method according to Claim 22 wherein the temperature probe sequence is a single stranded sequence, where the end portions hybridize together and wherein the reporter molecule is attached in the region of either the 5' or the 3' end of the sequence and the quencher molecule is attached at the opposite end.

24. (New) A method according to Claim 22 wherein the reporter and quencher molecules are located on different strands of a DNA temperature probe sequence such that on hybridization of the strands, they are brought into close proximity to each other.

25. (New) A method according to Claim 24 wherein FRET is established between an intercalating dye and a quencher molecule arranged on a strand of the temperature probe sequence such that is can absorb radiation from dye which is in close proximity on hybridization of the strands.

26. (New) A method according to Claim 22 wherein the temperature probe DNA sequence comprises a first DNA strand having a reporter molecule thereon, a second DNA strand having a quencher molecule thereon, said first and second DNA strands

being designed to hybridize to a third DNA strand such that the reporter and quencher molecules are brought into close proximity with each other.

27. (New) A method according to Claim 17 wherein the pre-determined temperature at which the DNA sequence denatures is determined by the length of the temperature probe sequence.

28. (New) A method according to Claim 17 wherein the pre-determined temperature at which the DNA sequence denatures is determined by the GC content of the sequence.

29. (New) A method according to Claim 17 wherein the biochemical reaction is an amplification reaction.

30. (New) A method according to Claim 29 wherein the amplification reaction is a polymerase chain reaction (PCR).

31. (New) A method according to Claim 30 wherein the length of the temperature probe sequence is similar to that of an amplicon of the PCR reaction.